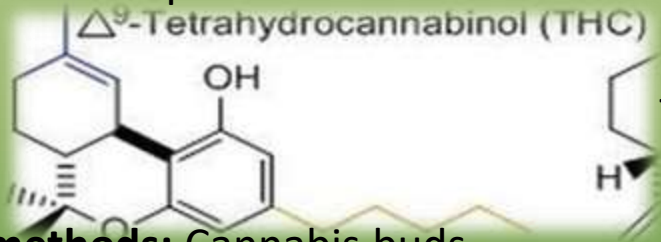
DEVELOPMENT AND OPTIMISATION OF THE PROCESS OF DECARBOXYLATION OF TETRAHYDROCANNABINOIC ACID, FOLLOWED BY FTIR DETECTION OF TETRAHYDROCANNABINOL IN MEDICINAL CANNABIS

Cocovska I.[1,2], Demirovski Kockova K.[1], Trajanovska Faizova V.[1], Maksimova V[2]

1Oaza Alakaloidi, Shtip, Republic of North Macedonia,
2"Goce Delchev" University, Shtip,Republic of North Macedonia

Aim of the study: The aim of this study was to develop and optimize the thermal treatment of Cannabis buds, required for the reaction of decarboxylation of THCA to THC followed by FTIR technique.



Materials and methods: Cannabis buds were heated on aluminum shelves, programmed by heating oven POL EKO SL 400. Temperature program was strictly monitored and changes were recorded on every 5 minutes. Mid Infrared spectra were collected for each sample and temperature, respectively, using Perkin Elmer Spectrum Two™ coupled to an UATR accessory in spectral range of 400-4000cm-1

Results: Changes in the IR spectra indicated appropriate conversion of THCA to THC, as the reaction progressed. Reaction of decarboxylation has occurred in temperature range from 85-120 °C. Conversion of THCA to THC contributed for obtaining of high concentrations of THC which ranged 38-80% *w/w*. The progress of the decarboxylation enhanced the obtaining of THC.

Conclusion: Monitoring the decarboxylation with FTIR technique presents a fast and plausible method for controlling the conversion of acidic forms of cannabinoids to their neutral forms. The treatment has shown a high yield of THC up to 80% w/w. In conclusion, these two methods could be ideally suited to everyday analysis because of their high performances.